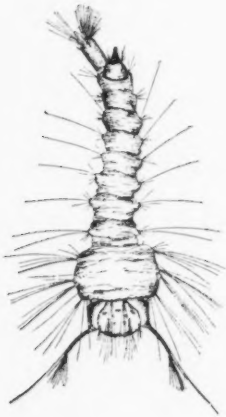
OCTOBER, 1909.

ENTOMOLOGICAL NEWS

Vol. XX. No. 8



Larva of Culex perturbans as described by Dr. John B. Smith.

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Desiderata of North American Carabidæ

81a, 87a, 106*, 07*, 08, 09, 11, 13*, 15, 17*, 19a, 23a, 23b, 26, 31, 41, 44, 47, 48*, 51*, 54, 58, 61, 62, 63, 66*, 68*, 70*, 71, 75, 80*, 81, 82, 85*, 86*, 87*, 89*, 90, 96, 202, 03, 04, 09, 16*, 23, 29, 36, 38, 45, 46*, 47*, 49*, 50*, 52, 53, 56, 57, 60*, 63, 68, 70*, 72*, 76, 77*, 78, 79, 81, 82*, 91, 93*, 94*, 98, 99*, 301*, 03, 07a, 09*, 10*, 12, 23*, 28, 34*, 35, 36, 38*, 46, 50, 52a, 53, 54, 55*, 62, 63*, 68, 69, 76*, 77, 78*, 82*, 83*, 85*, 90, 93, 98, 99, 400*, 06, 09, 10*, 11, 18*, 19*, 22, 24, 25, 28, 29*, 30, 32, 36*, 37, 38*, 39, 42*, 43, 44*, 46, 47*, 51, 58, 60, 64, 69*, 74*, 77, 78, 79*, 80*, 88*, 89*, 90, 91, 93.

Offerata, rare species of North American Coleoptera. *Lack full set.

THE SNOW COLLECTIONS, University of Kansas, Lawrence.

WORK OF MICROPARSUS VARIABILIS PATCH, ON DESMODIUM CANADENSE.—FIGURE OF MALE.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XX. OCTOBER, 1909. NO. 8.

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The Desmodium Aphid, Microparsus variabilis n. sp.*

EDITH M. PATCH.

(Plates XVIII and XIX)

For the past few years a very distinctive aphid has been present in enormous numbers upon the Canadian tick-trefoil in the vicinity of Orono. On account of the size of the wing tracheæ and the abundance of material this was one of the species which the writer used in the study of wing venation and it was figured and named in that connection before the description of the species was put into shape. Although not as detailed as is desirable it is hoped that the description given here will serve to place this characteristic species.

MICROPARSUS n. gen.

The ensiform cauda, the hemispherical anal plate, the cylindrical cornicles, the moderate hairs with spatulate tips, and the

*Papers from the Maine Agricultural Experiment Station: Entomology 35.

form of the antennae all indicate a close relationship of this genus with *Macrosiphum*. It is clearly differentiated from *Macrosiphum* and any other named genus by the wing characters. The radial sector* is short and strongly curved. The media is typically two branched. The cubitus and first anal are heavily shadowed. The hind wing is minute, the tip extending only to about the first anal of the fore wing, and is correspondingly narrow. The costal hooks of the hind wing are very near the tip of the wing. Typically the hind wing has only the radius. The shape and relative size of these wings are better indicated by the accompanying figures than by a detailed description.

Microparsus variabilis n. sp.

The species under consideration is one of the most peculiar yet found in the family. I listed it first as *Macrosiphum* n. sp. as the cauda and cornicles would indicate. The head and antennae show *Myzus* tendencies, but the wings throw it out of any present genus. The heavy shadowing of the first anal and cubitus suggest the shadowed veins common in *Callipterus*. The two-branched media together with the frequent occurrence of a reversion of the three-branched condition presents a case similar to that of *Toxoptera*. The exceedingly small hind wing, however, and the very peculiar shape of the fore wing correlated with this are inconsistent with the characters of any named genus.

Mr. Sanborn in "Kansas Aphididæ" describes and figures the winged viviparous form of this or a closely allied species as *Macrosiphum* n. sp. and corrects this to *new genus, new species* in "Errata to Part I," but suggests no name in either instance.

This species may be *Macrosiphum desmodi* Williams which he lists on *Desmodium canadense* but as that species is *nomen nudum* there is no means of ascertaining.

Mr. J. T. Monell collected the same species thirteen years

*For the wing vein nomenclature, the reader is referred to "Homologies of the wing veins of Aphididae, Psyllidae, Aleurodidae and Coccidae." Annals of the Entomological Society of America. June, 1909.

ago and has graciously given me permission to use the notes with which he records his collection, as follows:

"On *Desmodium marilandicum*, St. Louis, Mo., August 12, '86. Covering leaves and stem in immense quantity. Colors alive under one-half inch pocket lens. *Apterous.* Head generally reddish yellow. Neck black. Tail yellowish to yellowish green. Dorsum yellow to yellowish green with few delicate irregular pale green markings. Apex of femora black. *Winged* the same. In the adult apterous is small dusky ring on abdomen enclosing nectary.

"33 wings had monofurcate 3d discoidal.
"14 wings had bifurcate 3d discoidal.
"24 wings had no discoidals.
"5 hind wings had trace of base of 2d discoidal."

Winged viviparous form.—Head light greenish brown. Hairs with spatulate tips present on head and antennae. Antennae black except basal III. Antennae much longer than body; 2.83 mm. with segments measuring I, 0.12 mm.; II, 0.08 mm.; III, 0.61 mm.; IV, 0.57 mm.; V, 0.49 mm.; VI (base), 0.12 mm.; spur 0.84 mm. Sensoria: A few (usually 5) circular sensoria in a more or less regular row on III; on V the customary terminal sensorium; and on VI the terminal with crowded group of 6 marginal sensoria. Eyes dark red. Ocular tubercles prominent. Beak 0.44 mm. long extending just caudad 3rd coxa. Thorax light brownish green, lobes glistening; prothorax with a dark longitudinal median line. Wings with veins dark brown. First anal and cubitus heavily shadowed, others unshadowed but heavy. Total expansion 5.4 mm. Hind wing extending only to the 1st anal of fore wing. Radius present and often the tip of media. Legs with the proximal two-thirds of femora very pale, distal one-third glistening dark brown, tibiae dark at proximal half and distal tip, with space between pale. Tarsi dark. Abdomen light green with dark patch at base of each cornicle. Cornicle dark brown, cylindrical, strongly and about uniformily imbricated throughout its length. Imbrications nowhere forming polygonal reticulations. A little larger at base than at the middle and slightly flared at tip. Cornicles 0.3 mm. long. Cauda light yellowish green, ensiform, upcurved, 0.24 mm. long. Anal plate hemispherical when seen from dorsal aspect. Total length of body, exclusive of antennae, 1.6 mm. Width 0.7 mm.

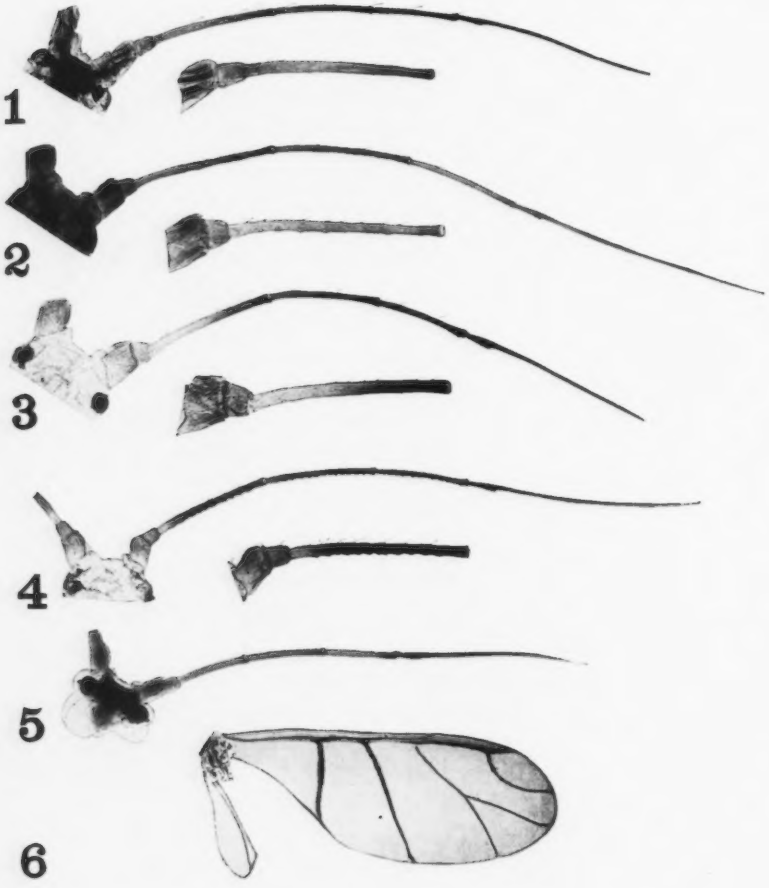
Apterous Viviparous Form.—Head light brown. Antennae with I, II, and basal III light, rest dark. Antennae longer than body, 2.62 mm. with segments measuring I, 0.14 mm.; II, 0.07 mm.; III, 0.62 mm.; IV, 0.48 mm.; V, 0.41 mm.; VI (base), 0.1 mm.; spur 0.8 mm. No sensoria on

III or IV, the usual terminal one of V and the terminal one with group of 6 crowded sensoria present on VI. Eyes red. Ocular tubercles prominent. Beak 0.43 mm., extending to 3rd coxae. Thorax and prothorax light green. Legs with femora light proximally and dark and glistening distally; tibiae dark at proximal and distal ends with light space between; tarsi black. Abdomen light green with dark ring at base of cornicle. Cornicle black, shaped and imbricated about as in the winged viviparous form. Cornicles 0.32 mm. Cauda light yellowish brown, ensiform, upcurved, 0.24 mm. Total length of body, exclusive of antennae 2 mm.; width .99 mm.

Apterous oviparous female.—Head light brown. Antennae black except basal III. Antennae longer than body, 2.62 mm. with segments measuring I, 0.15 mm.; II, 0.08 mm.; III, 0.6 mm.; IV, 0.48 mm.; V, 0.42 mm.; VI (base), 0.13 mm. Spur 0.76 mm. No sensoria except the terminal one of V and the terminal one of VI accompanied by crowded group of 6 marginal sensoria. Ocular tubercles prominent. Beak 0.44 mm., extending just caudad of 3rd coxa. Thorax light green. Legs colored as in winged viviparous form. Hind tibiae thickly set with sensoria. Abdomen light green with dark patch around cornicle. Cornicles dark brown, shaped and imbricated about as in the viviparous forms. Cauda light yellowish, ensiform, length 0.2 mm. Total length of body, exclusive of antennae, 2.25 mm. Width 1.01 mm.

Winged male.—Head light yellowish brown. Antennae black, longer than body, length 2.65 mm. with segments measuring I, 0.12 mm.; II, 0.08 mm.; III, 0.56 mm.; IV, 0.51 mm.; V, 0.41 mm.; VI (base), 0.12 mm.; spur 0.85 mm. Sensoria thickly set in III, IV and V. Terminal sensoria of V and group of VI similar to those of the other 3 forms. Ocular tubercles prominent. Beak 0.37 mm. reaching nearly to 3rd coxa. Thorax glistening brown. Prothorax light green. Wings with venation as in the alate viviparous form. Wings expand 4.95 mm. Legs colored as in alate viviparous form. Abdomen light green. Cornicles dark and strongly imbricated as in the other forms. Cornicles more uniformly cylindrical than in the other forms. Cauda lighter than abdomen, ensiform, about the length of tarsus, 0.12 mm. Total length of body, 1.125 mm.; width 0.56 mm.

The entire life cycle of the colonies observed in Maine is passed upon the Canadian or showy tick-trefoil, *Desmodium canadense* DC. The species reproduces upon the trefoil during the summer, and during July the colonies of apterous and alate viviparous forms thickly crowd the tips of the branches and the ventral surface of the leaves which become badly twisted and curled. From the middle of August to the middle



MICROPARSUS VARIABILIS PATCH.

of September the true sexes,—the winged males and the apterous oviparous females are abundant. Females kept in captivity deposit eggs upon the dried leaves and stems of the trefoil. A careful field examination of the infested plants late in September results in finding some eggs upon the stems and crumbled leaves of the trefoil, but the eggs are much more numerous upon the sticks and stones immediately about the base of the infested plant.

The colonies which furnish data for this species were found along a sandy stretch near Veazie, Maine, where the species has been exceedingly abundant for the past three seasons.

There is something indescribably distinctive about the species when observed even with the unaided eye. The first impression they give the finder is that "here is something out of the ordinary in the aphid line," before a detailed examination is made.

The large per cent. of abnormal veins both in the males and the alate viviparous forms in each season's collection made the examination of a great number of specimens necessary in deciding upon the type of venation normal for this species.

Too much stress should not be laid upon the colors of aphids as they vary more or less, the more recently molted individuals being in general paler than the others. Neither can the antennal measurements be taken as absolute as different individuals vary both as to the length of the entire antennae and as to the relative length of the different segments.

However, both the color scheme and the antennal measurements are a great convenience in the sum of characters, if given their relative values.

EXPLANATION OF PLATE XIX.

1. Head and antenna of apterous viviparous form.
2. Head and antenna of alate viviparous form.
3. Head and antenna of apterous oviparous female.
4. Head and antenna of male.
5. Head and antenna of pupa.
6. Wings, showing the type of venation most frequent for this species.

Two new Caddice Flies.

By NATHAN BANKS.

Macronema carolina n. sp.

Head brown, shining, warts dull black, circular; antennae blackish; palpi yellow; legs yellow, anterior tibiae black toward tip; prothorax yellow, thorax and abdomen black; fore wings dark brown, marked with pale patches having golden hair; a curved oblique mark, near base, an oblique costal mark, two larger costal marks near the pterostigma, both triangular, a half band in middle below the last of these, a larger triangular one on the posterior margin beyond, a broader one before with a basal extension, and a small spot in the otherwise uniformly dark apex of the wing. Hind wing blackish at apex. Male antennae about twice as long as wings. Expanse 23 mm.

Two specimens from Southern Pines, N. Car., (Manee).

Notiomyia ornata n. sp.

Head yellow, a patch of black hair under each antennae; a few bristles in middle of front, a few on side near each eye arising from a small wart, and some from the posterior depressions, rest of vertex smooth, shining, and flattened as in *N. mexicana;* antennae widely separated, black, some golden hair on the first joint beneath; palpi long, black, black-haired, last joint longer than in *N. mexicana,* as long as third joint, legs yellow, tarsi black, and apical part of middle and hind tibiae black, spurs black, tarsi and tibiae very hairy; abdomen yellowish. Wings dark brown, with streaks and spots of golden hair; a streak below radius, a spot at the stigma, a streak in the third apical cell, with a basal extension below, a streak in the second subapical cell, a spot over arculus extending above, two streaks from this spot reach toward base, where they are broader. Expanse 25 mm.

One from Brownwood, Texas, August.

A BLACK ARMY WORM.—V. K. Chesnut, in his "Plants Used by the Indians of Mendocino County, California" (Contrib. from the U. S. Nat. Herb., vol. VII, No. 3, 1902), states under *Fraxinus oregana* Nutt. (Oregon Ash, or the Pok of the Indians; p. 378): "The ash leaf is a favorite food of a little black army worm which has white spots on its back. The worm is consumed in large quantities as food by several of the tribes in Round Valley." Conceding that the larva is that of one of the army worm moths, entomologists should be duly grateful for having had at last brought to light some practical use for this noxious pest.—KARL R. COOLIDGE.

A new species of the genus Paroxya from Bermuda (Orthoptera).

By JAMES A. G. REHN.

Included in a very interesting collection of Orthoptera made in Bermuda in the winter and spring of 1908 and 1909 by Mr. Frank Morton Jones, is a remarkable new species of the genus *Paroxya*. It is not at all closely related to any of the previously known species of the genus, with specimens of all of which it has been compared except the Bahaman *P. dissimilis* Morse. In the form of the cerci the new form is distinctly different from the other members of the genus, while the brachypterous condition is only shared by the otherwise very different *P. hoosieri*.

Paroxya bermudensis n. sp.

Types: ♂ and ♀ taken in coitu; South Shore, Warwick Parish, Bermuda, January 15, 1909. Coll. by F. M. Jones. (Acad. Nat. Sci., Phila.)

Size rather small for the genus; form moderately elongate. Head with the occiput well rounded, hardly (♂) or distinctly (♀) elevated dorsad of the level of the disk of the pronotum, considerably and regularly declivent from dorsad of the middle of the eyes to the apex of the fastigium, the interspace between the eyes slightly less than half the fastigial width; fastigium with the margins very slightly acute-angulate, the immediate apex sub-truncate, narrowly rounding into the frontal costa, the interocular space and the fastigium broadly and shallowly sulcate; the angle of the fastigium and face obtuse when seen from the side, the portion of the facial line dorsad of the antennae sub-vertical when seen laterad, the portion ventrad considerably retreating; frontal costa subequal in width, though slightly narrowed dorsad in the male, reaching the clypeal suture, roughly biseriate punctate dorsad of the ocellus, deeply and broadly sulcate ventrad, eyes rather protuberant in both sexes, though slightly more so in the male than in the female, broad ovate in shape, flattened cephalad, the length nearly twice (♂) or more than half again (♀) that of the infra-ocular sulcus; antennae about one-half (♀) to four-fifths (♂) as long as the caudal femora. Pronotum with the cephalic margin of the disk arcuato-truncate, caudal margin very broadly obtuse-angulate, the greatest (caudal), width of the disk contained nearly twice (♂) or one and three-

eighths times (♀) in the length of the same; median carina very distinct, uniform, severed by the principal sulcus slightly caudad of the middle; lateral angles distinct but rounded, regularly and distinctly (♀) or slightly (♂) divergent caudad; lateral lobes with the dorsal length considerably exceeding the greatest depth, the caudal margin quite oblique. Tegmina three-fourths as long as (♂) or but slightly shorter than (♀) the dorsal length of the pronotum, ovate sub-lanceolate, the apex more acute in the female than in the male, the greatest width contained one and one-half (♂) to one and two-thirds (♀) times in the length of the same; venation prominent; dorsal margins separated but little in the male and by a space proportionately somewhat greater in the female. Apex of the male abdomen hardly at all recurved; furcula absent, the area where they are usually attached being narrower than the lateral portions of the terminal dorsal abdominal segment; supra-anal plate moderately elongate-lanceolate, with a well-defined median sulcus in the proximal two-thirds, while the lateral portions are broadly and deeply excavate the entire length of the plate; cerci elongate, reaching very slightly beyond the apex of the supra-anal plate, regularly tapering to hardly more than half the proximal width in the median section, then spatulate, expanding to a width nearly equal to that proximad, the ventral margin subtruncate, the dorsal strongly arcuate, the distal obliquely subtruncate, the lateral face of the expanded portion shallowly excavate, the whole cercus regularly, but not strongly, curving toward the median line; subgenital plate broad and shallow, the length of the same distinctly less than that of the apical margins, the latter broadly arcuate, a distinct subapical tubercle present, well separated from the apical margins. Ovipositors of the female rather slender. Prosternal spine retrorse, conical; interspace between the mesosternal lobes very slightly longitudinal (♂) or subquadrate (♀), metasternal lobes distinctly separated in both sexes. Caudal femora rather slender, hardly (♀) or distinctly (♂) exceeding the apex of the abdomen, pattern of the pagina regular and close; caudal tibiae with ten to eleven spines on the lateral margins.

General colors mars brown, marked with ecru drab on the face, sides of pronotum and pleura sprinkled and blotched with seal brown. A narrow line, ecru drab in the female, yellowish in the male, runs caudad of the dorsum of the eye a variable distance along the lateral angles of the pronotum, while the face and genae are rather irregularly blotched, aside from a pale bar, ecru drab in the female, more yellowish in the male, which extends from ventrad of the eye dorso-caudad, tapering, extending to the intersection of the lateral angles by the principal sulcus, dividing the seal brown blotch of the

dorsal half of the prozona of the lateral lobes; a poorly-defined blotch of the same pale color lies caudad of the dark area, these pale portions being much less clearly defined in the male than in the female. Tegmina mars brown. Abdomen dark, laterad on the proximal segments in the male, generally lined, streaked and blotched in both sexes. Caudal femora of the general colors with very slight indications on the dorsal face of transverse bars, the genicular arches and bases of the lobes seal brown, the ventral sulcus and ventro-lateral face burnt carmine; caudal tibiae pale bottle green, more or less speckled and clouded with brownish, particularly in the proximal half, spines blackish on their apical two-thirds. Eyes tawny-olive; antennae cinnamon.

MEASUREMENTS.

	♂	♀
Length of body	17.2 mm.	24.5 mm.
Length of pronotum	4. "	5.5 "
Length of tegmen	3. "	4.2 "
Length of caudal femur	10.2 "	13.8 "

The types are the only adults of the species seen, but immature individuals apparently belonging to this species were taken April 18 and May 8 and 11.

In the rather peculiar coloration, the presence of a sub-apical tubercle on the sub-genital plate and the absence of the furcula this species holds a unique position in the genus and a subgenus for its reception may have to be erected.

A CAT ENTOMOLOGIST.—Last summer I spent several weeks at Northeast Harbor, Maine, and collected *Sphingidae* quite assiduously, hoping particularly to find *S. canadensis.* The commonest species there is *S. kalmiae.* I took also *chersis, eremitus, A. choerilus,* and *H. diffinis* and *cimbiciformis.* In the local nursery, where the proprietor, Mr. Rothe, kindly allowed me to prowl about, specimens of all of these were fairly abundant at such flowers as Sweet William, "pinks," Larkspur and Snapdragon. One evening I noticed, among the flower-beds, a cat, of the "common or garden" variety, whose movements were so unusual as to attract attention. A little observation showed that she was catching and eating moths, sometimes jumping into the air to strike down one that hovered above reach. With her vastly keener vision, she could discover them much better than I, and her actions showed that she was quite accustomed to procuring that sort of evening meal. I did not succeed in taking *canadensis,* but think it not unlikely that the cat did.—W. C. WOOD.

Notes on W. R. Walton's "Illustrated Glossary of Chaetotaxy and Anatomical Terms Used in Describing Diptera."

By G. H. VERRALL, Newmarket, England.

An illustrated glossary is a first-rate idea, and should be of extreme value to (at any rate) beginners in any study; consequently Mr. Walton deserves the thanks of Dipterologists. Such a glossary should, however, be fairly complete and should be very accurate, because it is liable to be accepted as "gospel," and therefore before being accepted should be subjected to the severest criticism.

With all good will towards Mr. Walton's Glossary and with a desire to make it more complete and consequently more useful I feel it desirable to make every criticism possible to my knowledge, especially as various misprints and minor flaws occur, as well as numerous omissions and (in my opinion) errors which should not be perpetuated. The whole article seems also to have been compiled for "Tachinologists" only, and not for Dipterologists in general.

* * * * *

Page 308, near middle and 314, near bottom:

I thought that Osten Sacken, Dr. Sharp, and Girschner had completely disposed of the term "Calypter," and that we should never see it used any more.

Page 310, line 10:

"Cheeks." We have a common phrase of "cheek by jowl," which is exactly equivalent to the German "Wangen und Backen;" according to these Mr. Walton's "cheeks" should be "jowls"—a term omitted by him though used by American writers—and his "Gena" should be "cheek" or "side-cheek." As Mr. Walton says, "It seems deplorable that there should be in general use several names for any one part," but who would use "parafacial" for "side-cheek?"

Page 310, line 20:

The word "Head" must have occurred here by mistake and should be omitted, but in place of it "Epicephalon" mentioned on page 313, line 16, should be defined.

Page 311, line 4:

The "facio-orbital" bristles are apparently only a continuation of the fronto-orbital bristles on to the "genæ" (or side-cheeks), as mentioned under "Frontal bristles."

Page 311, line 9:

"Front." The term "Frons" is now superseding this, and avoids many a misinterpretation. If we use "vertex," "occiput," etc., we surely can use "frons."

Page 311, line 30:

"Frontal triangle." This is not figured, but is very frequently and expressively used in many groups of the Diptera.

Page 312, line 3:

"Gena." See note above on "Cheeks."

Page 312, line 7:

"Genovertical plate." This appears to me to be a new name for the well-known "Frontal Orbit," which is not included in the glossary.

"Jowls" should be included and defined here.

"Median vitta" is a term used on page 311, line 17, but not defined here.

Page 312, line 24:

"Occipito-lateral bristles." These do not appear to be figured.

Page 312, line 33:

The ocellar bristles are not always diverging and pointing forward.

Page 313, line 1:

"Orbits." Alphabetically this word will follow "Oral," and through this criticism may appear trivial; similar slight errors occur in other places which might well have been avoided.

Page 313, line 22:

"Peristoma" and "Epistoma" are not the same, and are by no means obsolete terms.

"Peristomium" is a strange term to me, and not included here though mentioned on page 314, line 13.

Page 313, line 26:

"Cillia" is a misprint for "cilia," though a similar error occurs twice on Plate xv in the word "cilliate." "Ptilinum" is not defined, though frequently mentioned.

Page 313, line 37:

"Transfrontals." These are bristles unknown to me and not satisfactorily figured.

Page 314, line 22:

"Acrosticals." Here and elsewhere this should be spelled "acrostichal."

Page 314, line 26:

"Calypters." Even if this term be abandoned in favor of "squamæ" still definitions should be given of the alar and thoracal pairs, as these are now known to show valuable distinctive characters. The term "frenum" should also be defined.

Page 314, line 35:

If "postsutural" be used surely "presutural" is also admissible.

Page 315, line 6:

The Hypopleura is not "between the metapleura and pteropleura." Of course "peteropleura" is a misprint. Mesonotum is not defined though mentioned elsewhere.

Page 315, line 17:

The "mesopleural row" of bristles is not always "near the angle formed by the dorsopleural and mesopleural sutures," but may extend all down the back margin of the mesopleura.

Metanotum is not defined, though mentioned under metapleura.

Page 315, line 22:

"Metapleura, the sides of the metanotum, a more or less swollen space." This definition leaves it very doubtful whether "metapleura" is a plural or singular noun; it might be either but I have always used "pleura" as singular and "pluræ" as plural. The metapleural bristles are very important in the *Asilidae*.

Page 315, line 29:

"Notopleural or dorsopleural suture." This is not well defined; it runs from the lower part of the humerus to the root of the wing, separating the mesonotum from the mesopleura.

Page 315, line 32 and page 315, line 34:

Presumably Post alar should be Postalar.

Page 315, line 36:

The "Posthumeral" bristles are distinct from the "Intrahumeral."

Page 316, line 12:

"Propleura." This is a new term to me. Is it not the "Prothorax" which is not mentioned at all? Neither are the prothoracal and stigmatical bristles (Becker) mentioned.

Page 316, line 17:

"Proalar bristle." This is not in its alphabetical place, and is not the "Pro alarborste" of Stein but is presumably his "Präalarborste," which I suppose we should call Præalar (or Prealar) bristle. The figure, however, appears to refer to a Posthumeral bristle.

Page 316, line 26:

"Pteropleural bristles" are by no means rare

Page 316, line 31:

"Scutellar bristles, marginal." These bristles, which seldom form a "distinct row" may point in various directions.

Page 317, line 18:

For "Trichostical" read "Trichostichal."

Up to this point I have tried to mention every correction which I could suggest, but when I come to "Legs" and "Wings" the omissions and inaccuracies are so numerous that I cannot take them in detail.

Under "Legs" I presume the first two paragraphs should read continuously as one. No mention is made of "front," "anterior," "middle," "hind," or "posterior" legs, nor is any reference given to the surfaces known as "antero-dorsal," "antero-ventral," "postero-dorsal," "postero-ventral" or even "anterior,"

"posterior," "dorsal" or "ventral." Other terms have been used by German writers, but at least some reference is necessary as these distinct surfaces are very important in distinctive characters. The "Mesal surface of the leg. That surface of the front and hind legs which is naturally turned toward the body" conveys no meaning to me. "Preapical bristle" applies to a bristle on the femora in some families. The "Tarsus" may be said to be almost invariably composed of five joints in the Diptera.

Under "Wings" almost all definitions are subordinated to the figure, and consequently I will only remark that obviously the *First* Longitudinal Vein is the *Second* and so on; the first posterior cell is often closed and consequently not bounded by the outer margin of the wing, while the (so-called) "Apical Cross-vein" is only a continuation of the (so-called) "Fourth Longitudinal Vein," and equally the "Posterior Cross-vein" is a continuation of the (so-called) "Fifth Longitudinal Vein." American writers have probably done more than any others in describing and naming the homologies of venation, and it seems unfortunate that *all* that work should be ignored.

I am afraid that I must come to the conclusion that the "Glossary" should be revised and considerably developed, in at least the parts devoted to "Legs" and "Wings" before it can be accepted as a standard, and that the European writers (especially Girschner) upon Chætotaxy should be studied and compared.

In conclusion I can say that I welcome the paper, but I offer these criticisms from fear that all the statements contained therein may be accepted as "Gospel" unless attention be quickly drawn to inaccuracies and serious omissions.

Mr. Edw. M. Ehrhorn, at present Deputy Horticultural Commissioner of California with Entomological Inspector's duties stationed in San Francisco, has received and accepted the appointment of Superintendent of Entomology of the Hawaiian Board of Agriculture beginning October 1st. Mr. Jacob Kotinsky resumes the post of Assistant Entomologist with the Board.

An Observation on the Intelligence of Junonia.

By WILLIAM SCHRADER, Los Angeles, Cal.

I have made breeding experiments with a number of different butterflies, and found *Junonia coenia* one of the tamest, and most intelligent butterflies in captivity. It seems not to be known exactly for what purpose the antennae of butterflies are used. I observed while feeding butterflies with honey, that *Vanessa* bend their antennae close to the ground several times, probably to feel, or to smell. But *Junonia coenia,* when I put it behind red paper, ran over the surface, and used its antennae very often, bending down to the paper, and when it came to a darker red place, stopped at it, and bent several times on that darker place; then remaining on the lighter place, turned four times with the head to the right in a perfect circle, and exactly four times back to the left, on the same spot; and later did the same thing once more, six times round to the right, and exactly six times back again. Is *Junonia* able to count, who knows? An explanation for turning around so often, may be found in the fact that *Junonia* rests with its tail to the sun, and as my red colored paper was placed vertically between the butterfly and the sun, it was puzzled in what direction to rest.

Professor G. H. Parker believes the object of the creature thus turning its tail to the sun is to display its coloring to the greatest advantage. And he says further: When a butterfly with cryptically colored under-side rests upon a flat surface in bright sunshine its shadow is often more conspicuous than the insect itself, so that economy of shadow may be a valuable means of protection. I, for my part, see things more in a practical way, and believe that the butterflies turn their heads from the sun for no other purpose than to see better. Would anybody who looked out for a friend or enemy look in the direction of the sun? I believe not, and I think a smart or highly developed butterfly learns how to see best the same as other animals. To return to the antennae, I believe they have other functions than that of smell and hearing, as some scientists assert, as nothing to smell or hear was on the red colored paper,

and it is certainly worth while to make further experiments in that line of work.

In the last two summers I could not obtain a pair of *Junonia* for breeding purposes as this butterfly is not very abundant near Los Angeles.

Geometrid Notes.

By JOHN A. GROSSBECK.

The following brief notes indicate changes in the standing of various Geometrids and are recorded in the belief that they will be of some value to others working in the group:

Sciagraphia orillata, now placed as the synonym to *S. continuata,* is a species strictly indigenous to the Western States, while *continuata* is an Eastern species whose Western limit probably does not extend beyond the Mississippi River in the north and the Rocky Mountains in the south. The two species may be separated at a glance by the course of the extradiscal line, which in *orillata* is evenly incurved below vein M_1 while, in *continuata* it is sinuous below this vein. Also in *orillata* this line is obsolete or only faintly indicated immediately above M_1 while in *continuata* there is no appreciable attenuation at this point. Further, in *orillata* the intradiscal line vanishes within and above the cell, and in *continuata* is pronounced and unbroken from the costa to the inner margin; also, this line is much more oblique in the former species. Superficially, especially when viewed in series, the two species are exceedingly unlike each other, and indeed there are two valid species whose position is directly between them.

The synonyms of the two species divide as follows:

Sciagraphia continuata Walk.
= *strigularia* Walk.

Sciagraphia orillata Walk.
= *excurvata* Pack.
= curvata Grote.
= cruciata Grote.

Packard's figure, Monograph pl. ix, f. 75, is a good representation of *S. continuata.*

Atrofasciata Pack. listed as a variety of *continuata* may possibly be a distinct species, but if not is a form of *continuata* as here limited.

Cymatophora tenebrosata Hulst. In the Proc. Ent. Soc., Wash., x, 87, 1908, I referred several specimens of a *Cymatophora* received from Dr. Dyar to this species, my determination being based on a lightly colored type in the Hulst collection. Recently I received two specimens of a supposedly new *Macaria* from Dr. Barnes and soon after was surprised to see the species in the Brooklyn Institute of Arts and Sciences labeled as types of *tenebrosata.* A reference to Holland's figure of a male type (Moth Book, pl. xliii, f. 50), which is not so well delineated as most of the insects in that book, shows that it too belongs to *Macaria.* My first impression was that I had made a mistake in my comparison with the type in the Hulst collection, but a renewed examination shows that while it resembles the other types it is a true *Cymatophora* and conspecific with the specimens named for the National Museum. In his description of *tenebrosata* Hulst mentions the head and collar being yellow-ochreous, a character that applies only to the *Macaria* species; I therefore propose to hold the name on that form, and the note in the Proc. Ent. Soc. Wash., referred to will then apply to an undescribed species of *Cymatophora.*

Cymatophora deceptata Hulst (Trans. Am. Ent. Soc., xxiii, 334, 1896) described from New York is a much abraded female example of *Orthofidonia exornata* Walk.

Mr. Henry L. Viereck of the Division of Entomology, Washington, has called my attention to the preoccupation of Hulst's generic name *Sympherta* (Trans. Am. Ent. Soc., xxiii, 338, 1896) in the Hymenoptera where it is proposed by Förster (Verh. d. Naturh. ver. per, Rheinl., xxv, 196, 1868) for a genus of Ichneumonidæ. *Sympherta,* of which *tripunctaria* Pack. is type is based on sound structural characters so I propose for the genus the name *Gladela.*

I might also add in this connection that *Sympherta coloradensis* Hulst (Trans. Am. Ent. Soc., xxiii, 338, 1896) is not congeneric with *tripunctaria* but is referable to *Cymatophora.*

Slossonia latipennis Hulst (Can. Ent., xxx, 217, 1898). The type of this species is a single female in the U. S. National Museum. In examining the museum collection in 1907 through the courtesy of Dr. Dyar, I found this type to be a much faded specimen of our common *Anaplodes remotaria* Walk.

Caberodes minima Hulst (Can. Ent., xxx, 219, 1898). Though originally described as a species "quite different in appearance from the ordinary *Caberodes*" Hulst nevertheless lists it as variety *b* of our common *C. confusaria* in Bull. 52, U. S. N. M. Besides being little over half as large as average sized specimens of that variable species it may be at once distinguished by the course of the extradiscal line which in *confusaria* always extends almost to the apex before bending in toward the costa, while in *minima* this line does not terminate further out on the costa than two-thirds the length of the costa from the base. It has other minor differences, and altogether the species are as distinct from one another as two species may well be. The conclusion of the specific distinctness of *minima* was reached from the type alone but I have now two additional specimens from Dr. Barnes which exhibit the differences noted above even more strongly than does the type.

Selidosema sericeata Hulst (Can. Ent., xxx, 191, 1898). This is identical with the species previously described by Grote as *Phasiane colata* (Papilio I, 167, 1881) and later referred by Hulst (Ent. Am., II, 224, 1886) as a synonym of *Sciagraphia nubiculata* Pack. The two do not belong in the same genus. *Nubiculata* is a true *Sciagraphia*. *Sericeata* is now placed with *correllatum* Hulst, a near relative, in the genus *Selidosema*. This is hardly the final resting place for either form, but until a complete revision of the species comprising the Boarminæ group is made it will perhaps be as well to retain them in that genus.

Ere many days have vanished, we
Will hear the gay mosquito call,
"I'm busier than the busiest bee,
And yet I get no praise at all."—*Judge.*

Standards of the number of eggs laid by Insects—VIII.*

Being averages obtained by actual count of the combined eggs from twenty (20) depositions or masses.

By A. Arsene Girault.

9. Chionaspis americana Johnson.

No.	Date 1908	No. counted per mass	Successive Totals	Av. per Egg Mass	Max.	Min.	Range	
1	Nov. 14th	103	103	103.			160	
2		73	176	88.				
3		56	232	77.3				
4		100	332	83.				
5		70	402	80.4				
6		53	455	75.8		53		
7		119	574	82.				
8		94	668	83.3				
9		100	768	85.3				
10		124	892	89.2				
11		77	969	88.				
12		79	1048	87.3				
13		160	1208	92.9	160			
14		139	1347	96.2				
15		121	1468	97.8				
16		79	1547	96.6				
17		94	1641	96.5				
18		82	1723	95.7				
19		97	1820	95.7				
20		127	1947	97.3			53	
			1947	97.3	160	53	107	Finals

The egg masses of this species were collected from eleven trees on the campus of the University of Illinois, Urbana, Illinois; the eggs were those of the winter generation. Willis Grant Johnson under the original description of this insect in 1896 (Bull. Illinois State Laboratory of Natural History, Springfield, 1898, iv (1892–1897), p. 392), states that the average number of eggs is 105. In Iowa, Wilmon Newell (Bull. No. 43, Iowa Agric. Exper. Station, Ames, p. 153) in 1899 gives the number as being between 40–90 eggs. No data are given by either.

* For the first seven of this series, see Ent. News, 1901, p. 305; 1904, pp. 2–3; 1905, p. 167; 1906, p. 6; 1907, p. 89; 1908, pp. 4, 383.

10. CHIONASPIS PINIFOLIÆ (Fitch).

No.	Date 1908	No. counted per mass	Successive Totals	Av. per Egg Mass	Max.	Min.	Range	
1	Nov. 14	38	38	38.				
2		19	57	28.5		19		
3		36	93	31.				
4		33	126	31.5				
5		41	167	33.4				
6		28	195	32.5				
7		28	223	31.8				
8		20	243	30.3				
9		48	291	32.3				
10		41	332	33.2				
11		42	374	34.				
12		26	400	33.3				
13		72	472	36.3	72			
14		70	542	38.5				
15		64	606	40.4				
16		39	645	40.3				
17		35	680	40.				
18		46	726	40.3				
19	Nov. 16	23	749	39.4				
20		29	778	38.9				
20			778	38.9	72	19	53	Finals

These egg masses were taken from the leaves of several pine trees on the campus of the University of Illinois at Urbana. The eggs are of the wintering generation. No definite record of the number of eggs deposited by this species has been found in the literature.

11. CHIONASPIS SALICIS — NIGRAE (Walsh).

No.	Date 1908	No. counted per mass	Successive Totals	Av. per Egg Mass	Max.	Min.	Range	
1	Mch. 20	85	85	85.			174	
2		126	211	105.5				
3	Mch. 22	68	279	93.				
4		141	420	105.				
5		145	565	113.				
6		91	656	109.3				
7		91	747	106.7				
8		104	851	106.3				
9		76	927	103.				
10		53	980	98.		53		
11		99	1079	98.				
22		131	1210	100.8				
13		159	1369	105.3				
14		84	1453	103.7				
15		124	1577	105.1				
16		174	1751	109.4	174			
17		54	1805	106.1				
18	Mch. 29	84	1889	104.9				
19		93	1982	104.3				
20		118	2100	105.0			53	
20			2100	105.	174	53	121	Finals

The egg masses were collected at Urbana, Illinois, on willow. I have not been able to find statements in the literature concerning the number of eggs deposited by single females of this species. The eggs were those of the winter generation.

12. LEPIDOSAPHES ULMI (Linnaeus).

No.	Date 1908	No. counted per mass	Successive Totals	Av. per Egg Mass	Max.	Min.	Range	
1	Feb. 21	75	75	75.			120	
2	Feb. 23	67	142	71.				
3		109	251	83.6				
4		100	351	87.7				
5		85	436	87.2				
6		94	530	88.3				
7		87	617	88.1				
8		120	737	92.1	120			
9		64	801	89.				
10		89	890	89.				
11	Mch. 18	80	970	88.1				
12	Mch. 20	83	1053	87.7				
13		90	1143	87.9				
14		72	1215	86.7				
15	Mch. 21	83	1298	86.5				
16		91	1389	86.8				
17		48	1437	84.5		48		
18		73	1510	83.8				
19		89	1599	84.1				
20		113	1712	85.6			48	
20			1712	85.6	120	48	72	Finals

The bodies of the females containing these egg masses were taken from several Carolina poplar trees along the streets of the city of Urbana, Illinois, during the early part of 1908. The literature of this coccid contains frequent statements concerning the number of eggs deposited, all of which approximate the results here obtained, excepting that the range is lower; these statements are, however, indefinite to the extent that the data upon which they are based are in most cases lacking.

A genus of Eumenid Wasps new to North America.

By S. A. ROHWER, Boulder, Colo.

Psiloglossa simplicipes n. sp.

Female: Length 6 mm. Clypeus rather large, narrowed at the apex where it is deeply emarginate, the lobes rounded at the apex and about the same width throughout; the surface of the clypeus is closely granular and with a few large punctures intermixed. Mandibles short, stout, with a rather large inner tooth, the apex is obtusely rounded and at some angles seems to be notched, so when the mandibles are not worn perhaps they would be tridentate; but not quadridentate. Front rather coarsely granular, except a shining area between the antennae. Vertex shining, sparsely punctured; the back of the occiput is closely punctured. The vertex with two shining tubercles which are low and rounded. Ocelli in a low triangle; the anterior ocellus much the largest. Antennae rather strongly clavate; the first joint of the flagellum about as long as 2 and 3 together. Dorsulum and scutellum coarsely granular; scutellum large and flat, ob-

tusely rounded and somewhat produced posteriorly. Mesopleurae striato-granular. Metathorax emarginate posteriorly and the metapleurae are narrowed beneath; the posterior face wth a faint channel down the middle, the surface striato-punctate; metapleurae shining; metanotum rugose. Legs short and rather slender; the middle tibiae with two apical spurs; *the tarsal claws simple.* Radial cell broadest opposite the second transverse cubitus; with a short appendiculation at the apex. The second cubital cell narrowed above, about a third as wide on the radius as the third cubital. The first recurrent received by the second cubital cell about the length of the second transverse cubitus from the second transverse cubitus; the second recurrent received by the third cubital cell about the length of the second transverse cubitus from the second transverse cubitus. The transverse median, which is received a little before the basal nervure, is not straight, but is strongly bent toward the apex of the wing. The transverse median of the hind wings is straight, perpendicular, and interstital with the transverse cubitus. Abdomen sessile, somewhat the shape of members of the genus *Oxybelus;* shining, the first segment sparsely punctured, the second and following segments with distinct, separate punctures, closer than those on the first segment; there is no pygidial area. Black; two transverse spots on the top of the clypeus, a round spot at the summit of each eye, pronotum, margins of the tegulae, spot below the tegulae, spot before the scutellum, spot on the scutellum, an even band on the posterior margin and sides of the first segment, a band on segments 2, 3, and 4, widened greatly at the sides and emarginate between the sides and the middle, *cream-colored.* Middle of the tegulae brown; flagellum slightly reddish beneath. Leg below the trochanters *light ferruginous,* the apex of the anterior femora beneath, and the four posterior tibiae exteriorly *cream-colored.* Wings clear hyaline; venation brown to black. Head and thorax with a little silvery pile.

Type locality: Las Cruces, N. M. One specimen collected August 31, at flowers of *Solidago canadensis* by C. H. T. Townsend. I am much indebted to Prof. T. D. A. Cockerell for the specimen, and for offering some helpful suggestions.

This is a most remarkable little wasp. I am by no means sure that it belongs to the genus *Psiloglossa* Saunders (= Stenoglossa Sauss.), but place it there for the present. The simple tarsal claws would seem to put it in the subfamily Vespinae. It is not anything like most of these however, while it does resemble some species of *Odynerus* in general habitus. The genus *Psiloglossa* has not before been reported from the Western Hemisphere.

Some Habits of Empididae.

By W. L. McAtee, U. S. Biological Survey.

On March 31, 1909, near Winston-Salem, N. C., the writer had an opportunity to make some slight observations on the feeding and mating habits of *Empis spectabilis* Loew. Apparently the habits of this species have not been described, and indeed, notes on the habits of Empididae as a group are scarce. We will review briefly what has been written on Empids of the United States. In the Proceedings of the Entomological Society of Washington, Vol. II (1890-1892) 1893, pp. 146-147, Mr. E. A. Schwarz described the feeding habits of a species of *Syneches* which caught little gnats and other minute Diptera. Of most interest in the present connection is their manner of perching while devouring the captured insects, which is described as follows: "Holding their prey between the legs, and their body being in vertical position, they slowly fly toward the nearest bush, and, without alighting, most dexterously manage to take hold of the edge of a leaf with the claws of the right or left front leg. The long and very sharp claws are well adapted for taking a firm hold on the surface of the leaf, and the long pulvilli assist in the operation by pressing on the edge of the under side of the leaf. Thus vertically suspended by a single leg, the fly uses its five free legs for manipulating the gnat. Within ten or fifteen seconds it has sucked out its prey, then drops the same and flies away. On a single shrub alongside a road I could see at the same time thirty or more specimens of the fly all suspended in exactly the same way, while numerous others were constantly going or coming."

In the American Naturalist, Vol. xxxiii, 1899, pp. 809-812, J. M. Aldrich and L. A. Turley describe the interesting habits of a balloon-making Empid (*Empis acrobatica* Melander). At the time of mating the male of this species carries an ovoid frothy bag, and it was observed that "in nearly every case there was a small fly pressed into the front end of the balloon, apparently as food for the *Empis*, as the attached species were partly Chironomus and partly Oscinids, and other Acalyptrate Muscids." While flying about with this balloon the male

is alighted upon by a female and copulation ensues. "After copulation had begun, the pair would settle down towards the ground, select a quiet spot, and the female would alight by placing her front legs across a horizontal grass blade, her head resting against the blade so as to brace the body in position. Here she would continue to hold the male beneath her for a little time until the process was finished. The male, meanwhile would be rolling the balloon about in a variety of positions, juggling with it, one might almost say. After the male and female parted company, the male immediately dropped the balloon upon the ground."

Mr. A. L. Melander notes* quite different mating habits in another Empid, namely *Hilara trivittata* Loew, which lives about brooks. "When copulating the pair float on the surface, and are swiftly carried down stream." Mr. H. S. Barber tells me he has seen a species of this family, probably of the genus *Empis,* in California which remains on the wing throughout the period of copulation.

The behavior of the flies observed by the writer presents interesting analogies to that noted in the case of *Empis aerobatica* by Messrs. Aldrich and Turley. In their article as well as that by Mr. Schwarz, it is stated that the Empids suspended themselves by the forelegs, and I noted the same with respect to *E. spectabilis,* both when feeding singly and when copulating. This species, however, did not brace the head against the support but hung under it, the long front legs passing up on each side of the thorax, the tarsi being curved over the objects clung to. The latter were of various kinds, twigs of young oaks, hickories, sourwood and blades of the common brown-sedge (*Andropogon*) being utilized. Aldrich and Turley remark that the female was the upper member of the breeding pair and grasped the support. In *Empis spectabilis* the position of the sexes is reversed. About four o'clock in the afternoon, in a warm, quiet spot, hundreds of pairs of these flies were seen clinging to the objects above mentioned, the male of each couple grasping the support with the first

*Trans. Am. Ent. Soc. 28, 1902, p. 200.

pair of legs, and his partner with the other two pairs. In every case observed the female held an insect in her legs, and was busily engaged in devouring it. Her long stiff proboscis was run through and through the prey, apparently with the greatest ease, while she turned it about with her legs, reminding one of the balloon juggling practiced by the male *Empis aerobatica*. If a pair were forced from their perch they flew off and were able to re-alight without interrupting either breeding or feeding processes. The prey of 17 pairs collected consists entirely of Diptera, as follows: 14 *Bibio pallipes* Say., a very abundant species at the time, and one each of *Pegomyia fusciceps* Zetterstedt., *Borborus equinus* Fallen and an *Empis* sp. in too poor condition for identification. In this connection the writer wishes to express his hearty thanks to Mr. D. W. Coquillet for determining the flies herein mentioned.

Although numbers of *Empis spectabilis* were seen every day for a week no indications were noticed of balloon or other web making such as has been described in the case of *E. aerobatica* and several European Empididae. The observations are in harmony with previous ones demonstrating the predaceous qualities of Empids; they show furthermore that cannibalism, at least of a generic character, is practiced. Great dexterity in suspending themselves and in manipulating their prey, characterizes the Empids so far observed. Behavior in sexual union varies greatly; an interesting feature is the carrying of prey at this time by two of the four species whose habits are known.

OF INTEREST TO COLLECTORS OF INSECTS.—PROGRESS IN CUBA.—With the beginning of the present fiscal year the Republic of Cuba establishes a Bureau of Information, President Gomez appointing Leon J. Canova, an American newspaper man, who has resided in Cuba eleven years and has a wide acquaintance with the Island, as its director.

Parties wishing information of any nature concerning Cuba can obtain same, free of charge, by writing to Leon J. Canova, U. and I. Bureau (Utility and Information Bureau), Department of Agriculture, Commerce and Labor, Havana, Cuba.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., OCTOBER, 1909.

At its last meeting the Entomological Society of America passed a resolution to the effect that it saw no wisdom in a duty on insects. The reasons for this were set forth in a carefully prepared and to our mind convincing document which was signed by the proper officers of the society and sent to the Chairman of the Ways and Means Committee in Washington, D. C.

The merits of a case do not appear to cut much figure in Congress and the expected happened.

The act now in force which appears to cover insects is as follows: "Specimens of natural history, botany, and mineralogy, when imported for scientific public collections, and not for sale," are on the free list. The act is ambiguous in some respects as stuffed birds; eggs of birds, fish and insects; fossils; minerals and shells are free. Entomologists as yet can have no "political pull" and we hope they never will have. Tariff bills are apparently not framed on the merits of any particular case.

A. W. MORRILL has resigned his position with the Bureau of Entomology as investigator in charge of Citrus White Fly Investigators and has accepted the position of Entomologist of the Arizona Horticultural Commission and of the Arizona Experiment Station.

AS WILL be noticed among the advertisements in this number a new price list of publications for sale, has been issued by the American Entomological Society; and also a "Classification of the Families of the Coleoptera of America north of Mexico," giving tables or keys by which the families may be distinguished, a very useful pamphlet to those interested in that order of insects.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

DOCTOR PHILIP P. CALVERT writes as follows from Costa Rica:—By such papers as have reached us, I see that you have had a much hotter summer in Philadelphia than we have had here in Cartago. For July and August we are keeping a record of temperatures given by our self-recording maximum and minimum thermometer, and the maximum has never yet reached 80 in the shade. In the low country of course it is hotter.

Mr. William Schaus has been of great assistance to me in giving information about favorable collecting places, etc. He expects to go to Washington in September next and to London about Christmas, to work up his book on Costa Rican Lepidoptera, based on his collections of the last three years. It will be a very extensive list—much exceeding the Biologia. He has done so much that it seems hardly worth while for anyone else to touch Lepidoptera here.

Since writing you in May, I have made trips to Guapiles, Guacino, Juan Vinas, Turrialba, Tierra Blanca, Volcano of Irazu and El Alto, representing elevations from 350 to 11,000 feet above sea level. So far I have not been able to find Odonata above 6400 feet, though you took them at 11,000 feet in Colorado, and Van Ostrand and I at 8600 and 9000 feet in Mexico. Some days we spend almost exclusively in looking for Odonate larvae and have succeeded in finding those of some genera whose larvae were previously unknown. In many groups of plants and of animals we see interesting things and of some of them we have photographs from life. Altogether we are enjoying our study of Costa Rica very much.

Osmia mandibularis Cresson.—In my list of the bees of New Mexico (Trans. Am. Ent. Soc., 1906, p. 305), I cited a species of *Osmia* from Rociada, which I had formerly recorded as *O. mandibularis*, but which Mr. Titus, having seen Cresson's type, held to be distinct and undescribed. Today, at Boulder, Colorado, I dug out from a bank a cluster of old *Osmia* nests, containing some dead specimens of the bees. The first one I examined proved, to my delight, to be a genuine female *O. mandibularis*, with enormous basal processes on the mandibles. The Rociada insect, compared with this, has the processes very greatly reduced, but is in other respects the same. As Mr. Titus suggested, it looks like a distinct species; but I find among my Boulder specimens one which is of much smaller size than the type with the mandibular processes greatly reduced. As this small specimen is in other respects a *mandibularis*, and as it came from the same group of nests, it is evident that *O. mandibularis* is a very variable species, and that the Rociada specimens belong to it after all.

The smaller female, however, agrees with Cresson's description of *Osmia faceta*, except for the more distinct nodosity on the mandibles. It is evident that *faceta* is very closely allied, if not one extreme of the variation of *mandibularis*.

In the same group of nests, I found a very much broken male. This agrees with Cresson's short description of male *faceta*. Its distinctive characters are as follows:—*O. mandibularis* ♂. Smaller than the normal ♀, but of the same blue color. Head large; hair of face (where very abundant), vertex and cheeks, as well as that on thorax, entirely white; ocelli rather large, in a low triangle, the distance between hind ocelli less than distance from one to eye-margin, lower edge of clypeus black, somewhat upturned, broadly truncate in the middle, with a very faint appearance of crenulation; antennæ black, ordinary; tegulæ shining black; legs black with light hair; fourth and fifth segments of abdomen fringed with white hair (segments 1 to 3 missing); sixth clothed with glittering white hair, and with a rather small apical notch; seventh bidentate. *O. chalybea* Sm. is allied.—T. D. A. COCKERELL, Boulder, Colorado.

GUNNING FOR BUGS.—Tuesday night Ralph C. Wright and a companion were out two and a half miles west of town hunting. Shortly after six o'clock they heard a buzzing and humming noise which they could not account for, until looking up they saw the sky fairly black with large beetles flying from the west toward the east. There appeared to be thousands of them and being curious to know what they were they took a few shots at them. A number were brought down and one was brought to this office by Mr. Wright. It proved to be the common black boat shaped water scavenger beetle known to scientists as *Tropisternus triangularis*. It is one of the largest beetles, being one and a half inches in length. They were undoubtedly flying from the waters of the Basin west of this city to some other body of water east of the city.—WARREN KNAUS, McPherson, Kansas.

Doings of Societies.

The fifty-second meeting of the Hawaiian Entomological Society was held in the Library of the Hawaiian Sugar Planters' Experiment Station, Honolulu, June 3, 1909.

Mr. Kirkaldy read the following papers: "Notes on the genus *Oechalia* (Hem.);" "A note on the synonomy of a Hawaiian beetle."

President Swezey exhibited specimens and read a paper on *Hypocala velans* (Lep). He also read a paper by Mr. Giffard entitled, "Note on *Plagithmysus perkinsi*" Sharp. (Col.)

The fifty-third meeting of the Hawaiian Entomological Society was held in the library of the Hawaiian Sugar Planters' Experiment Station, July 1, 1909.

Mr. Swezey, exhibited specimens of a lepidopterous leaf miner, *Gracilaria mabaella* n. sp., in Hawaiian Ebony (*Maba sandwichensis*), and red notes on its life history.

Mr. Terry read a paper entitled "Notes on Some Common Introduced Insects in Hawaii also Observed in South China;" Lepidoptera 1, Coleoptera 2, Hymenoptera 2, Orthoptera 2, Diptera 6. Total 13 spp.

The fifty-fourth regular meeting of the Hawaiian Entomological Society was held in the library of the Hawaiian Sugar Planters' Experiment Station, August 5, 1909.

Mr. Kuhns read a few notes on a number of well-known insects observed on a recent trip to Maui, having unusual habits.

Mr. Kotinsky gave interesting notes on *Aspidiotus destructor*.

Mr. Swezey exhibited a jar of corn from Kula, Maui, attacked by the sugar cane borer *Sphenophorus obscurus* (Col.)

Mr. Swezey gave the following corrections in name of a Tortricid whose habits were given by him in a previous paper under the name *Enarmonia*. He had recently determined it to be *Adenoneura falsifalcellum Wlsm.* He also gave some notes on *Dromaeolus bonvouloiri* Shp., a *Eucnemid* with very peculiar larvae living in rotten wood.

DANIEL B. KUHNS, *Secretary.*

A meeting of the Newark Entomological Society was held on March 14, 1909, at Turn Hall. The President was in the chair and nineteen members present.

Messrs. F. B. Monaghan, of Newark, and Henry Hofer, of Paterson, were elected members.

Mr. Buchholz reported the capture of *Xylina grotei* at Elizabeth, February 22d.

Prof. Wormsbacher remarked that *Phyciodes mycteis* was locally common in 1908.

Mr. Brehme presented a paper entitled "Notes on Some New Jersey Lepidoptera" in which he reviewed the Rhopalocera

and larger Heterocera, comparing the present rarity of some of the species around Newark with their comparative abundance in past years. This he attributed in a measure to the encroachments of the expanding city upon the breeding grounds, but also to parasitism and disease to which many species seemed especially subject in late years. In closing his paper, Mr. Brehme called attention to the advisability of transferring the better species to new fields.

In reference to this latter statement Professor Smith said that considerable work of this character is being done in England with good results.

Mr. Doll spoke of the difficulties sometimes attendant upon the transference of insects from one place to another and said that all his attempts to establish *Philosamia cynthia* in new localities were absolute failures, due probably to the larvae falling prey to birds. He also spoke of the terrific destruction caused to insect life by the burning of the fields and woodlands. Limacodids are being literally banished from large sections of territory lying adjacent to cities, and such species as *Ecpantheria deflorata,* once so common, are now being reduced almost to extinction by this same cause.

A meeting of the Newark Entomological Society was held April 11, 1909, in Turn Hall with the President in the chair and twenty-three members present.

Mr. John Kuenzler, of Paterson, was elected to membership.

Mr. Buchholz stated that *Philosamia cynthia* cocoons were this year generally parasitized by a species of *Pimpla.*

Prof. Wormsbacher reported *Feralia jocosa* unusually abundant at Alpine, N. J.

Succeeding these reports Professor Smith gave a lecture on Mosquitoes, illustrated with lantern slides. He outlined the work that is being done in New Jersey and gave a history of the development of the methods now in use in ditching marshlands. The work of extermination in New Jersey is progressing as rapidly as the limited funds appropriated by the Legislature will permit. Already 25,192 acres of salt marsh have

been drained and 3,633,974 feet of ditches, 10 inches wide by 30 deep, have been cut. Practically no mosquitoes have developed on this vast area since the work has been done and the eggs with which the marsh is littered are constantly growing less so that with each water covering fewer larvae hatch.

JOHN A. GROSSBECK, *Secretary.*

First International Entomological Congress.

BRUSSELS, BELGIUM, AUGUST FIRST TO SIXTH, 1910.

In the middle of August of next year the Eighth International Zoological Congress takes place in Graz, Austria. Such meetings further science not only by the communications and the discussions connected therewith but especially through the opportunity offered to zoologists to come in personal contact with one another.

It is evident that entomology plays a very subordinate role at these Zoological Congresses. The number of entomologists who take part in these assemblies and the time which can be spent on this branch of zoology is small in proportion to the multitude of persons engaged in entomological research, and the great advance which this science has made. The importance of entomology in agriculture and medical matters becomes more and more recognized and we therefore think the time appropriate to unite in one distinctive congress all the entomologists with their different branches and to create an International Standing Committee as a central organization to forward entomological interests.

One of the chief objects of this undertaking is to bring entomologists in closer relations with general zoology on the one side, and with the practical side of entomology on the other.

With this in view we propose that an Entomological Congress be called every three years, about two weeks before the Zoological Congress, so that propositions and conclusions of general importance can be brought forward for discussion. The First International Entomological Congress will hold meetings in Brussels from the first until the sixth of August, 1910, at

which time and place occurs the World's Exposition. The program will be issued during the winter of 1909-10; it seems to us desirable to place at the present time the following propositions before entomologists.

The subjects on which all entomologists are invited to contribute are: Systematics, Nomenclature, Anatomy, Physiology, Palaeontology, Psychology, Ontogeny, Phylogeny, Ecology, Mimicry, Ethology, Bionomics, Zoogeography, Medical and Economic Entomology and Museology.

Committees in Brussels will look after the accommodation and entertainment of members and will be present to offer advice.

The members of the Congress will be:

1. Life members, who pay a sum of at least $50 to cover the contributions for all future Entomological Congresses. Their contributions will go into a permanent fund of which only the interest is to be used at the discretion of the International Standing Committee. They will receive all the publications of the Congress.

2. Ordinary members, who pay a contribution of $5 for each Congress and who receive all publications gratis. Ladies and children accompanying members pay $2.50 for each Congress and receive all favors of the members, but receive no publications.

Local committees have been formed in various countries to aid the Executive Committee in the important preliminary work for the First Entomological Congress.

Those whose names we give herewith will give further information on inquiry. In the name of the Provisional Standing Committee:

E. L. Bouvier, H. Rowland Brown, G. C. Champion, F. A. Dixey, L. Gangblauer, W. Horn, A. Janet, K. Jordan, A. Lameere, G. B. Longstaff, E. B. Poulton, G. Severin. Executive Committee: W. Horn, A. Janet, K. Jordan, G. Severin. Chairman of the Committee for the United States: Henry Skinner, Philadelphia. Chairman of the Committee for Canada: C. J. S. Bethune, Guelph.

EXCHANGES.

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☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Am back on the farm again and would be pleased to collect insects in any order in exchange for Coleoptera and Hemiptera, for my collection, or literature on these orders. Meloidae, Coccinellidae and Membracidae especially wanted.—W. E. Snyder, Beaver Dam, Wisconsin.

Wanted for cash, named or unnamed material in the Trogositidae of United States, Canada and northern Mexico. Dates desirable. Locality must be guaranteed. Information regarding life habits appreciated. Write, stating particulars and prices.—R. P. Dow, 15 Broad Street, New York City.

Lepidoptera—I have for exchange bred specimen of *D. portlandia*, *A. andria*, *E. deflorata*, *P. ajax* and others.—Chas. L. Heink, 4320 N. 11th St., St. Louis, Mo.

Following bred Catocalae—I hope in coming season give in exchange *praxini*, *sponsa*, *nupta*, *elocata*, *electa*, *dilecta*, *conjuncta*, *promissa*, *fuerpera*, *pacta*, *optata*, *fulminea*, *conversa*, *nymphagoga*. Would like American Catocalae only, the same first-class quality.—G. Eberhard, Berlin Friedenau, Beckerstr. i. Germany.

I desire to exchange with collectors of Lepidoptera in Florida, Ariz. and Nevada, also South America, India and Japan. Send lists to A. F. Porter, Decorah, Iowa, U. S. A.

Lindsay Symington, of Looe, Cornwall, England, wishes to correspond with collectors in South and Central America; also California and other western parts of North America, with the object of friendly exchanges of papered Lepidoptera.

Fine Moths, live cocoons, butterflies, leaf insects, walking sticks, beetles, etc., from Assam, Darjeeling, Ceylon and Andaman Is., also bird's eggs (central blown), and orchids can be had from A. Meik, 4 Convent Road, Entally, Calcutta.

Exchange—I have for exchange the following specimens from the Canadian Northwest: *Argynnis lais*, *P. ismeria*, *M. harrisii*, *S. nephele*, var. *olympus*, *L. afra*, *L. rustica*, *L. Saepiolus*.—Wanted other Rhopalocera in return.—A. R. M. Boulton, 5 Morrin Court, Quebec, Canada.

Lepidoptera—Fine specimens of *A. genutia* and *P. protodice* var. *vernalis* to exchange for any species of *Anthocharis* or *Colias* except *Philodice*.—John H. West, 2229 N. Mascher St., Phila., Pa.

I wish to purchase American Lepidoptera and their cocoons and will also exchange European Lepidoptera and cocoons for American species. Gottlieb Schone, Gr. Salze bei Magdeburg, Welchhausenstr. 6 Germany.

Wanted in exchange or cash, in papers, *Cychrus*, Cicindelidae, *Carabus*, *Calosoma*, Lucanidae, Buprestidae and eggs of larger moths, only native.—Adolph Mares, 1206 So. Homan Ave., Chicago, Ill.

Wanted in enchange or for cash fertile eggs of larvae of *Parasemia plantaginis* and their varieties, also eggs or larvae of *Apantesis* and allied genera.—M. R. 835 Mathew Ave., Scranton, Pa.

Coleoptera—Wanted parties at a distance to exchange specimens. Correspondence solicited.—A. E. Allen, 112 Vanderbilt Ave., Brooklyn, New York.

Eggs—Would like to buy eggs of Sphingid and Saturnid moths or of any other large moth. Please mention food plants and price. Will not pay more than 5c. per doz.—S. L. Wright, Jr., Bay Head, N. J.

Indian and Venezuelan butterflies to exchange for others. Desire large and showy North American and Mexico.—George Rossiter, 618 Queen E, Toronto, Canada.

Exotic butterflies given in exchange for stamp collection or unused current issue your locality.—Geo. Rossiter, 618 Queen E, Toronto, Can.

Living pupae and cocoon wanted of the following for cash or exchange from one to one hundred of each species: *A. luna, C. imperialis, regalis, dictynna, jorulla, orizaba, splendida, gloveri, calleta, columbia, californica, angulifera, C. pandora,* any *Sphinx*, any *Papilio* and eggs of any Catocalae.—A. F. Porter, Decorah, Iowa.

Wanted—All kinds of pupae and cocoons from North America and Mexico, either for cash or good exchange.—Herman H. Brehme, 74 13th Avenue, Newark, N. J.

Cocoons—*S. cynthia* to exchange for *S. cecropia, C. promethia, T. polyphemus* and other pupae or Lepidoptera in papers.—John H. West, 2229 N. Mascher St., Phila., Pa.

Wanted for cash or exchange, 2 female and 2 male *Arg. diana;* must be in perfect condition to be acceptable. I have many specimens in papers to exchange.—G. H. Hosenfelt, 3673 S. Broadway, St. Louis, Mo.

Saturnidae—Have always for exchange ova, cocoons or set imagines of Japan, Africa, Ceylon, India and Malayan Saturnidae as *Attacus edwardsi, Actias selene, Caligula japonica, simla* and a new species of *Cricula*. Wanted live cocoons or ova Central American and Mexican *Attacus*, also *luna, colombia, calleta* and *shastaensis*. Old correspondents invited to write.—J. Henry Watson, 70 Ashford Road, Withington, Manchester, England.

I have for exchange eggs of *Catocala cara, vidua, piatrix, scintillans* and, on pins, imagoes of *illecta, innubens, robinsoni, vidua* and others. Wish imagoes of *Marmorata viduata, junctura*, etc.—R. R. Rowley, Louisiana, Mo.

Dytiscidae wanted by exchange or purchase Henshaw's numbers 1236, 1239, 1241, 1260, 1271, 1272, 1307, 1311, 1336, 1337, 1341, 1351, 1363, 1373, 1376, 1398, 1407, 1416, 1429, 1450, 1453, 1456, 1070, 1471, 1500, 1503, 1504.—John D. Sherman, Jr., 335A, Decatur St., Brooklyn, N. Y.

Offered—Fine *Parn. apollo, delius, mnemosyne, Arg. paphia, A. aglaia, lathonia, Lyc. coridon, semiargus* and other butterflies. Wanted pupae of Papilios *S. geminatus, astylus, excaecatus, cerisyi, myops*, cocoons of *gloveri*, etc.—J. W. H. Harrison, 181 Abingdon Road, Middlesbro, England.

Coleoptera—Many rare species from the Arkansas Valley, Kansas.—J. C. Warren, Mt. Hope, Kansas.

Coleoptera exchanged for species not represented in my collection. Endomychidae and Erotylidae especially desired.—R. J. Crew, 561 Carlan Ave., Toronto, Canada.

Exchange—Living pupae of *M. modesta, Sph. chersis, A. bicolor, Pap. cresphontes, Pap. asterias* for native or exotic Lepidoptera.—A. Mares, 2517 Homan Ave., Chicago, Ill.

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